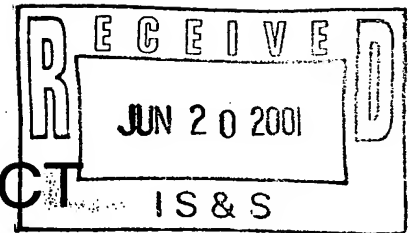


# PATENT COOPERATION TREATY

From the  
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

*EXPRESS EL 90232118345 PPE*



To:

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## NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL PRELIMINARY EXAMINATION REPORT (PCT Rule 71.1)

Date of mailing (day/month/year)	13.06.2001
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Applicant's or agent's file reference RCA89521		<b>IMPORTANT NOTIFICATION</b>
International application No. PCT/US00/11629	International filing date (day/month/year) 28/04/2000	Priority date (day/month/year) 30/04/1999
Applicant THOMSON LICENSING S.A. et al.		

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

### 4. REMINDER

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

Event	OA IPER Final Countries
Deadline	30 Aug 2001 David
Entered	DPE 6/20/01

Name and mailing address of the IPEA/  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer  Schiebl, W-P  Tel. +49 89 2399-2860
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# PCT

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference RCA89521	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/US00/11629	International filing date (day/month/year) 28/04/2000	Priority date (day/month/year) 30/04/1999
International Patent Classification (IPC) or national classification and IPC G11B20/00		
Applicant THOMSON LICENSING S.A. et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.



2. This REPORT consists of a total of 4 sheets, including this cover sheet.

☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 6 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand  17/11/2000	Date of completion of this report  13.06.2001
Name and mailing address of the international preliminary examining authority:   European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer  Sucher, R  Telephone No. +49 89 2399 2148  

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/US00/11629

## I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

### Description, pages:

1,3-11	as originally filed	
2,2a	as received on	28/05/2001

### Claims, No.:

1-11	as received on	28/05/2001
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### Drawings, sheets:

1/6-6/6	as originally filed
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2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/US00/11629

- ☐ the description,      pages:
- ☐ the claims,      Nos.:
- ☐ the drawings,      sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

## V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

### 1. Statement

Novelty (N)	Yes:	Claims	1-11
	No:	Claims	
Inventive step (IS)	Yes:	Claims	1-11
	No:	Claims	
Industrial applicability (IA)	Yes:	Claims	1-11
	No:	Claims	

2. Citations and explanations  
**see separate sheet**

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT - SEPARATE SHEET**

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International application No. PCT/US00/11629

**Re Item V**

**Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Reference is made to the following document:

D1: EP-A-0 561 685 (FUJITSU LTD) 22 September 1993.

2. Claim 1 defines a method for processing an audio data file, usable in a portable data processing apparatus which has a key file and a decryption program stored therein and which is adapted to be removably coupled to a data storage device having a unique identifier, an audio data file, and a decoder file stored therein. The decoder file is decrypted only with a (first) key stored in the key file whereas the audio data file is decrypted with a (third) key specified by the unique identifier and a (second) key stored in the key file.

Document D1 only discloses to en- and decrypt software using a key specified by a unique medium identifier and a key stored in a key file of the apparatus (corresponding to the second key), see in particular fig. 11C. Using different kinds of encryption keys for en- and decrypting the audio data file and the associated decoder file (application program) provides an alternative solution to prevent a user from playing audio data that has been copied without authorization. Since such a solution is not suggested in the prior art, it appears to meet the requirements of the PCT with respect to novelty and inventive step.

The same statements also apply to the corresponding apparatus and memory device according to claims 6 and 11, respectively.

expected to be available in the future.

Unauthorized copying and distribution of digitally encoded data is a significant concern associated with such players, especially in light of the growing popularity of such devices and the relative ease with which such data is downloaded and distributed over the Internet and other sources. Therefore, it is desirable to provide a portable audio data processing apparatus and a method for processing encoded audio data prevents a user from playing data that has been copied without authorization. Also, it is desirable to prevent a user from making multiple playable copies of an audio data files from one removable data storage device, such as a compactflash<sup>TM</sup> memory card, to a similar type of data storage device.

EP-A-0 561 685 discloses an electronic data protection system comprising a user computer coupled to a data storage medium and a vendor computer. The data storage medium includes a medium number and encrypted permission information. The vendor computer includes a generating unit for generating a medium key based on the medium number, an electronic data decrypting key, and an encrypting unit for encrypting the electronic data decrypting key based on the medium key to generate the encrypted permission information. The user computer includes a personal key generating unit for generating a medium key based on the medium number, a decrypting unit for decrypting the permission information based on the medium key to generate the electronic data decrypting key, and a decrypting unit for decrypting the encrypted electronic data based on the electronic data decrypting key to generate a plain text electronic data. However, such a system requires the user computer to be coupled to a vender computer and to receive the necessary information from the vender computer to perform the various operations.

The present invention addresses the above-noted objectives with regard to portable audio players, particularly handheld audio players, by providing a portable audio playback apparatus and a method for processing encoded audio data file that prevents the copying of an audio data file in playable form from one removable data storage device, which device includes a unique identifier stored therein, to another similar type of data storage device. In particular, the present invention provides a portable audio player and a method for processing audio data files that encrypts the audio data files in response to a unique identifier associated with a removable data storage device and a key stored in a key file of the portable audio player.

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In one respect, the present invention is, in a portable audio data processing apparatus comprising a micro-controller coupled to a digital signal processor, the apparatus having a key file and a decryption program stored therein, the apparatus adapted to be removably coupled to a data storage device having a unique identifier, an audio data file and a decoder file stored therein, a method for processing the audio data file, the method comprising

5 the steps of: identifying first and second keys in response to the decryption program; retrieving the audio data file and the decoder file from the data storage device in response to a user selection of the audio data file; decrypting the decoder file in response to the first key and the decryption program; decrypting the audio data file in response to the second key and the

10 decryption program; decoding the

10/030769

12 531 Rec'd PCT/FT 22 OCT 2001

## CLAIMS

1. In a portable audio data processing apparatus (10) comprising a micro-controller (22) coupled to a digital signal processor (12), the apparatus having a key  
5 file and a decryption program stored therein, the apparatus adapted to be removably coupled to a data storage device (32) having a unique identifier, an audio data file and a decoder file stored therein, a method for processing the audio data file, the method comprising the steps of:

identifying (116, 118) first and second keys stored in a memory of the micro-  
10 controller in response to the decryption program;

retrieving (130, 134) the audio data file and the decoder file from the data storage device in response to a user selection of the audio data file;

decrypting (131) the decoder file in response to the first key and the decryption  
program;

15 generating (132) a third key in response to the second key and the unique identifier (49);

decrypting (132) the audio data file in response to the third key and the decryption program;

20 decoding (133) the decrypted audio data file in response to the decrypted decoder file; and

providing the decrypted, decoded audio data file to an output device.

2. The method of claim 1, wherein the steps of identifying the first key and identifying the second key comprise identifying (118) a first memory location having  
25 the first key stored therein and identifying a second memory location having the second key stored therein.

3. The method of claim 2, wherein the data storage device is a solid state memory device (32).



4. The method of claim 3, wherein the data storage device is a compactflash™ memory card (32).

5. The method of claim 1, wherein the data storage device includes a plurality of audio data files and decoder files stored therein, each one of the plurality of audio data files being associated with a selected one of the decoder files, the retrieving step comprising identifying a selected decoder file associated with the audio data files and retrieving the audio data file and the selected decoder file in response to the user selection.

10 6. A portable audio data processing apparatus (10), comprising:  
user input means (26) for receiving user inputs;  
data input means (33, 34) for receiving digital data;  
a data storage device (32) having an audio data file, a decoder file and a unique  
15 identifier stored therein, the data storage device adapted to be removably coupled to the data input means;

a digital signal processor (12); and  
a micro-controller (22) coupled to the user input means, data input means, and digital signal processor, the micro-controller transferring (108) a decryption program  
20 and a key file to the digital signal processor in response to the data storage device being coupled to the data input means, the digital signal processor identifying (116, 118) first and second keys stored in a memory of the micro-controller in response to the decryption program, the micro-controller transferring (130, 134) the audio data file, the decoder file and the unique identifier from the data storage device to the digital  
25 signal processor in response to user selection of the audio data file, the digital signal processor decrypting (131) the decoder file in response to the first key and the decryption program, the digital signal processor decrypting (132) the audio data file in response to the second key, the unique identifier and the decryption program, the digital signal processor decoding (133) the decrypted audio data file in response to the  
30 decoder file.

7. The apparatus according to claim 6, wherein the digital signal processor identifies the first and second keys by identifying first and second locations having the first and second keys stored therein.

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8. The apparatus according to claim 6, wherein the data storage device comprises a solid state memory device (32).

9. The apparatus according to claim 6, wherein the data storage device  
10 comprises a compactflash™ memory card (32).

10. The apparatus according to claim 6, wherein the data storage device (32) includes a plurality of audio data files and decoder files stored therein, each one of the plurality of audio data files being associated with a selected one of the decoder files,  
15 the micro-controller (22) transferring a selected one of the plurality of audio data files and an associated decoder file to the digital signal processor (12) in response to a user selection.

11. A compact memory device for storing digital data, the memory device  
20 adapted to be coupled to a handheld audio playback device, the memory device comprising:

a plurality of memory cells, the memory cells having stored therein:

a unique identifier associated with the compact memory device;

an audio data file having audio data encoded in accordance with a  
25 selected one of a plurality of encoding formats and encrypted using a first key stored in a micro-controller of the playback device;

a decoder file associated with the selected one of a plurality of encoding formats, the decoder file encrypted using the unique identifier and a second key stored in the micro-controller of the playback device, the decoder file being adapted to be  
30 transferred to a digital signal processor for causing the digital signal processor to

decode the audio data file in accordance with the selected one of a plurality of encoding formats; and

an identifier data file for identifying the correspondence between the audio data file and the associated decoder file.

PCT  
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## NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Commissioner  
 US Department of Commerce  
 United States Patent and Trademark  
 Office, PCT  
 2011 South Clark Place Room  
 CP2/5C24  
 Arlington, VA 22202  
 ETATS-UNIS D'AMERIQUE  
 in its capacity as elected Office

Date of mailing (day/month/year) 18 December 2000 (18.12.00)	
International application No. PCT/US00/11629	Applicant's or agent's file reference RCA89521
International filing date (day/month/year) 28 April 2000 (28.04.00)	Priority date (day/month/year) 30 April 1999 (30.04.99)
Applicant CHEAH, Sin, Hui et al	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:

17 November 2000 (17.11.00)

☐ in a notice effecting later election filed with the International Bureau on:2. The election ☒ was☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO  
 34, chemin des Colombettes  
 1211 Geneva 20, Switzerland

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Authorized officer

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